VIRTUAL WORLDS:
An overview, and study of
BBC Children's *Adventure Rock*

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To find out more about the AHRC/BBC KEP please visit the AHRC's website at: http://www.ahrc.ac.uk/FundingOpportunities/Pages/KnowledgeExchangeProgramme.aspx

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FOREWORD

There are no more discerning consumers than children. Children play, think and live differently to the rest of us – whilst inhabiting the same, sometimes dangerous world. For the BBC, children's programming has long been a challenge as well as an exciting opportunity, as we seek to serve this most fickle and rightly demanding demographic.

Today's under-13's have been brought up with the web as their birthright, and they fail to differentiate between toys and technology. For most, computers represent just another opportunity to explore, rather than a daunting operating system to conquer. Most significantly, children remain – as they always have been – social beings who love to share their games, dreams and ideas with each other. All of which makes the opportunities posed by the emergence of virtual worlds that much more exciting. Immersive environments give children the chance to engage with each other, experience content in new ways and explore new aspects of creativity.

The BBC recognised this potential, but we also realised that we had no idea if the old rules of audience behaviour remained relevant. Nor did we know if our own preconceptions as a broadcaster needed realigning as we developed new products on new platforms with new forms of interaction. So to have the opportunity to engage in some meaningful and much needed research on these themes was a chance we couldn't pass up.

Although the focus of this research was based largely on CBBC's Adventure Rock, we're hopeful that there will be lessons for other agencies who share our objectives. The launch of the game in early 2008 gave academia and media the chance to join forces. Adventure Rock has proven to be a fantastic practical test lab, as well as the opportunity to intellectually examine the newly tangible medium of the virtual world. The conclusions, opinion and expertise coming out of the team at the University of Westminster, with the support of the AHRC, proved invaluable for the Adventure Rock project. Investigating and analysing children's behaviour from an academic perspective has given us as broadcasters a new insight into our audience and has set in stone some core principles for future collaborations. It has also informed CBBC's strategy as we look to the future of children's interactive media. We hope you find it equally beneficial.

Rachel Bardill and Pete Davies
October 2008

EXECUTIVE SUMMARY

Introduction

This report aims to offer BBC producers and managers an introductory overview of virtual worlds. It suggests reasons why virtual worlds will become relevant to BBC producers, illustrates what virtual worlds might offer BBC audiences, gives an overview of one of the most vigorous growth areas (virtual worlds for children), future trends and recommendations. This report also provides an analysis of audience behaviours and shows what is involved in the production of virtual worlds, using *Adventure Rock* as the case study.

Adventure Rock is a 3D virtual world and single player gaming environment produced by BBC Children's for children aged 7-11. Seven creative studios offer children the ability to create music, art, cartoons, video, and inventions. The children's avatars can also perform in a dance studio and watch video on 'Cinema Island'. There are games for children to play, pages to collect which build into a mysterious book, and coins to accumulate which can be exchanged for upgrades to the player's avatar and for Cody, a friendly robot who accompanies the children as they explore the colourful world. Other characters, robots and crocodiles, offer some limited sociability. Finally, in-world video screens provide a news digest for the children about the world. There is also a website with message boards, additional help for children, and a gallery.

Adventure Rock launched in April 2008, and was the subject of a year long collaborative research study by the researchers which was completed in June 2008. The findings from the study are presented in this report for BBC producers to illustrate audience and producer engagement in virtual worlds. The full version of the report, *Children in Virtual Worlds: Adventure Rock Users and Producers Study*, is available from BBC Children's. Since the research study ended, BBC Children's have implemented changes to *Adventure Rock* in response to recommendations from the researchers and the children themselves.

The research study

The research partners (the University of Westminster and BBC Children's) wanted to understand audience behaviours in immersive environments such as virtual worlds or immersive games. BBC Innovation managers in Future Media and Technology wished to find out the potential value of virtual worlds for BBC audiences (children are an 'early adopter' group). BBC Children's wished to find out what children and their parents think of *Adventure Rock* and other virtual worlds for children.

Two half-day creative workshops with 90 children took place at BBC Cardiff, BBC Belfast, BBC Glasgow and BBC London in December 2007 and January 2008. During the

first workshop children were asked to create their ideal imaginary world or place, and an imaginary friend they would like to be with. During the second workshop the children told the researchers what they thought of *Adventure Rock* and other virtual worlds and immersive gaming environments for children.

In between the two workshops the children kept a diary of drawings, notes and thoughts on virtual worlds, *Adventure Rock* in particular. A questionnaire was given to the parents to ascertain what they thought of *Adventure Rock* and other virtual worlds for children, and to find out whether their perception of CBBC (and the BBC) had changed having seen *Adventure Rock*.

——————— FINDINGS ———————

The BBC and immersive media

The growth of virtual worlds for children, and the increasing adoption of virtual worlds and immersive media by children, indicates that adult audiences will become more attracted to them in the future. As children grow older it is likely that they will expect the BBC to provide new kinds of immersive environments which reflect their interests as they mature.

Adventure Rock

The researchers found that *Adventure Rock* is not as complex as many commercial services and does not provide a sociable and collaborative environment 'in-world', but it was highly valued by the children. The children thought it was different because it offered them a space 'outside' which they could explore. The children who took part in the study were also very excited by the 3D graphics. Only one other virtual world has a comparable quality of 3D experience (*My Tiny Planets*), therefore the BBC has something of a market advantage.

The value of virtual worlds for young audiences

The researchers found that *Adventure Rock* offers educational benefits to the children and provides a place to develop transferable skills for adult life such as problem solving and exploring. The children also liked the fact that *Adventure Rock* is free, with no need for payments or subscription. *Adventure Rock* is seen as a suitable service for a public service broadcaster to launch, and an important service in order for the BBC to keep pace with external developments in media.

Collaborative and social interaction

Virtual worlds and immersive gaming environments offer chat and other collaborative and group activity. The children in the *Adventure Rock* study were disappointed by the lack of such important social features. We recommend that sufficient financial resources be allocated by the BBC specifically to support the production and ongoing management of social and collaborative online environments. It is clear that the children and parents in the study expect the BBC to offer innovative and collaborative services online. If the BBC fails to produce web-based public service content of similar social complexity to global commercial offerings, there is a business risk that the BBC will lose audiences to commercial operators.

Producing virtual worlds

Virtual worlds and immersive gaming environments require different time-scales and more complex production activities than non-immersive media. The development period is typically much longer (two years or more), the beta test and launch is complex, and the world or environment must be both facilitated (moderated and hosted) and iteratively extended. The closure of a virtual world requires careful planning, and should be discussed as soon as possible after launch.

The researchers found that the audience prefers purely web-based virtual environments, whereas *Adventure Rock* does not run in a Web browser and requires users to download the separate *Adventure Rock* program to their PC.

From moderation to governance

Virtual worlds require a closer relationship with audiences, and this includes the co-production and co-management of content. The researchers found that an analysis of virtual worlds for children provided illustrations for several different models of shared governance. The relationship with audiences in immersive environments involves rights and responsibilities for both the producers and audiences. A change of position towards governance and shared responsibility will be required should more immersive environments be provided. There may be a need for a re-examination of the practical, ethical and legal arrangements between audiences and producers.

The need for 'fair dealing'

There is a greater need for fair dealing in immersive media where visitors may begin to colonise the space. It became clear in the study of *Adventure Rock* that children want to be much more informed, for example, when areas are closed, under development or where there are any technical problems: a greater degree of transparency is required.

Some children became frustrated, angry or anxious when it was not clear whether their inability to access some areas was a technical limitation or their own fault.

A different place for the audience

The nature of virtual worlds means that the audience ceases to be 'out there', external to the BBC. Producers who are skilled at engaging with audiences should play 'key roles'. The *Adventure Rock* study found that young players create their own experiences within the world and should be considered co-producers. The researchers recommend BBC producers should examine ways in which audiences can be more closely involved, from the earliest point in concept development – not mere beta testing, when the production is almost complete.

VIRTUAL WORLDS

Why virtual worlds are relevant to BBC producers

The number of visitors to virtual worlds is increasing; this is particularly true of children for whom virtual worlds and immersive gaming environments are becoming part of their everyday spectrum of media choices. Children's media use is often an indicator of the future adoption of new technologies by adults. A BBC News report indicated that there were 158 virtual worlds for children either launched or in development (9 May 2008). The list was drawn up by Joey Seiler, Editor of *Virtual World News*.

Some immersive environments are both a world and a game, including *Adventure Rock*, which provides an 'outside' environment for children to explore, and games to play on the quest to find out the mysteries behind the world. The inhabitants of the adult world *Second Life*, however, firmly believe that *Second Life* is not a game but a world, because it has no particular goals, or point of 'completion'.

The technologies and techniques behind virtual worlds and immersive gaming are likely to begin to affect and influence other media. One of the most influential industry studies of the last few years, *The Metaverse Roadmap: Pathways to the 3D Web: A Cross-Industry Public Foresight Project* (2007), has noted that the Metaverse (immersive online environments) is diversifying. Four basic kinds of Metaverse or immersive types of content were predicted. Some are already observable within more traditional media:
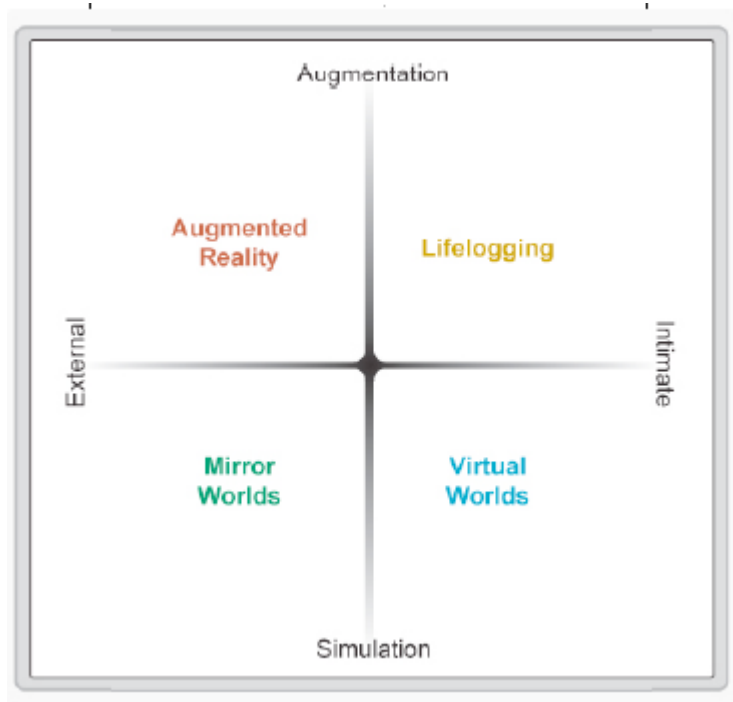

Fig. 1 Four basic types of Metaverse

The first category is virtual worlds, which are discussed in this report. The second category tipped for steady growth is Mirror Worlds, informationally-enhanced virtual models or 'reflections' of the physical world which incorporate mapping, modelling and annotation tools, plus geospatial sensors and other location-aware technologies. Mirror Worlds may also offer what they term 'lifelogging' facilities – the third category – that are the ability to record the history of an activity. An example would be Google Earth and the way it is providing an increasingly annotated image of the world.

Fig. 2 Google Earth Home Screen, N. America

Augmented Reality is the final category, a technology which mixes the real and virtual. A camera translates a bar code on a card, for example, into an animated object which then appears within the scene framed by a computer screen. This is something that the BBC has already implemented in various instances, notably BBC Children's *Bamzooki* where tiny 'Zooks' appeared to be situated on a table in a television studio with children and presenters who reacted to the battles between the virtually-present creatures, originally created by the children online. *BBC Jam* used Augmented Reality to motivate storytelling with young school children who were given characters to manipulate.

As the technology driving virtual worlds develops the different types of Metaverse are likely to overlap. A Google Map of *Second Life* might be developed, or perhaps an immersive version of Albert Square might be produced that offers the navigation for a multi-layered archive on the soap.

Virtual worlds and the value to BBC audiences

The findings of the study show that properly produced virtual worlds for children are seen as a positive thing by both parents and children. Access to a public service virtual world for children was liked by both parents and children, not least because it is free from subscription or commercial marketing. The children in the study appeared to accept having to pay for access to most virtual worlds as a 'fact of life'. Thus one of the reasons why they valued *Adventure Rock* was because their parents didn't necessarily have to be involved in any financial transaction. This may be reflective of a wish to take control of their own access to media, rather than any concern for their parent's financial wellbeing.

The researchers have drawn up a list of positive comments from the parents and children showing that the value of virtual worlds tends to outweigh possible negative aspects. We should qualify that, however, by noting that this is not a list of the values of *Adventure Rock* per se, because some of the potential values are not provided by it (e.g. social skills, becoming a creator, having responsibilities). In the future *Adventure Rock* may offer all the values we suggest that virtual worlds could offer children.

FINDING: The value of virtual worlds for children

1. A playful, engaging, interactive alternative to more passive media.

2. Becoming a creator and having control over elements of a world.

3. Creating mental maps, exploring, and understanding a new world and its systems (e.g. transport, money).

4. Rehearsing having responsibilities, looking after things.

5. Learning social skills.

6. Playing with identity, e.g. dressing up.

7. A tool for self-expression.

8. Computer literacy

Virtual worlds – a natural human trait

The researchers found that the children in the *Adventure Rock* study naturally created imaginary places and even worlds; this is part of children's natural imaginative play. As adults we also like to imagine new worlds. John Carey listed 500 utopias in *the Faber Book of Utopias* (1999). He writes:

> "Utopias elude definition. The genre merges, at its edges, into related forms – the imaginary voyage, the earthly or heavenly paradise, the political manifesto or Constitution. But an average, middle-of-the road utopia will include transit to some other place, remote in space or time or both, where the inhabitants are different from us, perhaps recognisably human, perhaps not, and where something can be learned about how life should be lived."

Carey cites the earliest European utopia as being *Plato's Republic*, written around 360 BC, followed by the Roman historian Tacitus who wrote the *Germania* in AD 98, "a work of political and moral exhortation" (Carey, 1999:16). These works were followed by Plutarch's *Life of Lycurgus* (AD 120), Sir Thomas Moore's *Utopia* (1516) and so on. Imagining words different from our own is, perhaps, something we do naturally as a species.

A short history of virtual worlds and immersive gaming

Virtual worlds could arguably be said to have developed from early collaborative text-based role play games hosted on the internet called MUDs (Multi-User Dungeons, Domains or Dimensions) and MOOs (Massively Multiplayer Online Games). Richard Bartle and Roy Trubshaw created the first online multi-user game in 1978 at the University of Essex. The games could be played by multiple users situated anywhere they could access the internet. The role play progressed through instructions and speech written out in text form.

The first graphical virtual world, *Maze War*, actually appeared earlier than this. Players could move around a 3D maze, from a first-person perspective, shooting other players. The game was first played in 1973 over a serial cable, but in 1974 was enhanced to run on ARPAnet, the predecessor of today's internet. (A full history of the game, and screenshot, can be found at the *Maze War* article on Wikipedia).

Massively Multiplayer Online Gaming began in earnest in the 1990's with *EverQuest*, *Asheron's Call*, and *Ultima Online*, released in 1997, followed by *The Sims, Star Wars Online*, and *Final Fantasy XI*. The Korean medieval fantasy game *Lineage* has claimed three million players, overtaken only by *World of Warcraft*, launched in 2004, which has 10 million subscribers. This is almost two-thirds of the total subscriber base for all MMOGs, which in 2008 has been estimated at approximately 16 million (see www.mmogchart.com/charts).

Edward Castronova of Indiana University feels the growth in the numbers of players of MMOs and MMORGS was because the people who played games as children in the 1980s and early 1990s "became game playing adults after the turn of the century. Many of them – 20 million or so – began to play massively multiplayer online games" (Castronova, 2006: 57).

eMarketeer, a company specialising in statistics for marketers in the USA conducted a survey in 2006 to assess the projected growth of virtual worlds for children and teens aged 3-17 years of age. They estimated that 24 per cent of the 34.3 million child and teen users in the US would use virtual worlds on at least a monthly basis in 2007 and they believed 53 per cent of them would use virtual worlds by 2011.

US Child and Teen Internet Users* Who Visit Virtual Worlds, 2006-2011 (millions and % of total Internet users ages 3-17)

Year	Value
2006	5.3 (16%)
2007	8.2 (24%)
2008	12.0 (34%)
2009	15.1 (42%)
2010	17.7 (48%)
2011	20.0 (53%)

Note: Virtual worlds are sites and applications that provide users with an online environment for interaction and socialization, typically through customizable avatars; *ages 3-17 visiting at least once per month
Source: eMarketer, September 2007

087140   www.eMarketer.com
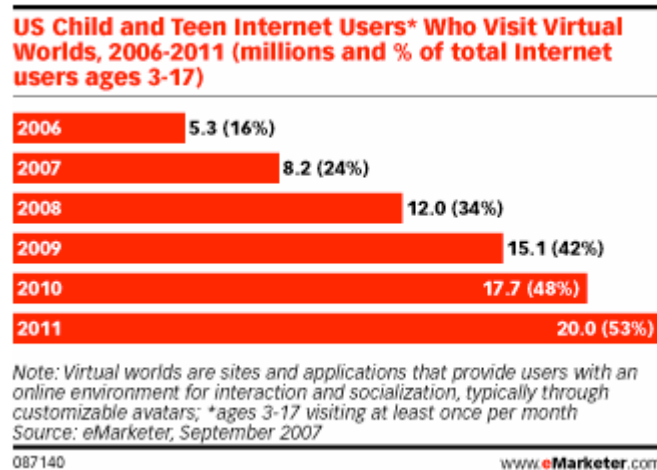
Fig. 3 Growth of children and teens in virtual worlds

It is therefore highly likely that this adoption trend will expand to include adults in due course. The speed at which this will take place is difficult to determine as it will be affected by the availability of technology and access to a high-speed internet connection, local cultural considerations and the quality of immersive services. As virtual worlds and immersive media become more useful and more familiar, the adoption rate is likely to become faster.

Virtual worlds for children have reached a critical mass where there are sufficient numbers of children, worlds and financial models to sustain an industry. Large media organisations, such as Disney, are buying virtual worlds (in Disney's case, *Club Penguin*) in order to position themselves strategically to take advantage of the future growth of virtual worlds and immersive media. The range of businesses that offer virtual worlds to children includes new media companies, film companies, and toy manufacturers, as well as public service media such as the BBC and VRT, the Belgian public service broadcaster (who commissioned *KetNetKick*, the precursor of *Adventure Rock,* from Larian, a games manufacturer, in Belgium).

VIRTUAL WORLD NUMBERS
- Habbo - 90m accounts
- NeoPets - 45m accounts
- IMVU - 20m accounts
- Club Penguin - 15m accounts
- Star Doll - 15m accounts
- Gaia - 12m accounts
- Barbie Girls - 12m accounts

Source: K Zero

Fig. 4 Registered users, virtual worlds for children, 2008

Dan Miller is a Senior Economist on the Joint Economic Committee of the US Congress. Figures released via his blog (June 2008),on the growth of immersive gaming environments for adults, build on statistics released by American strategy group NPD, which did not include free MMORGS or subscriber figures (which Miller has added alongside in brackets).
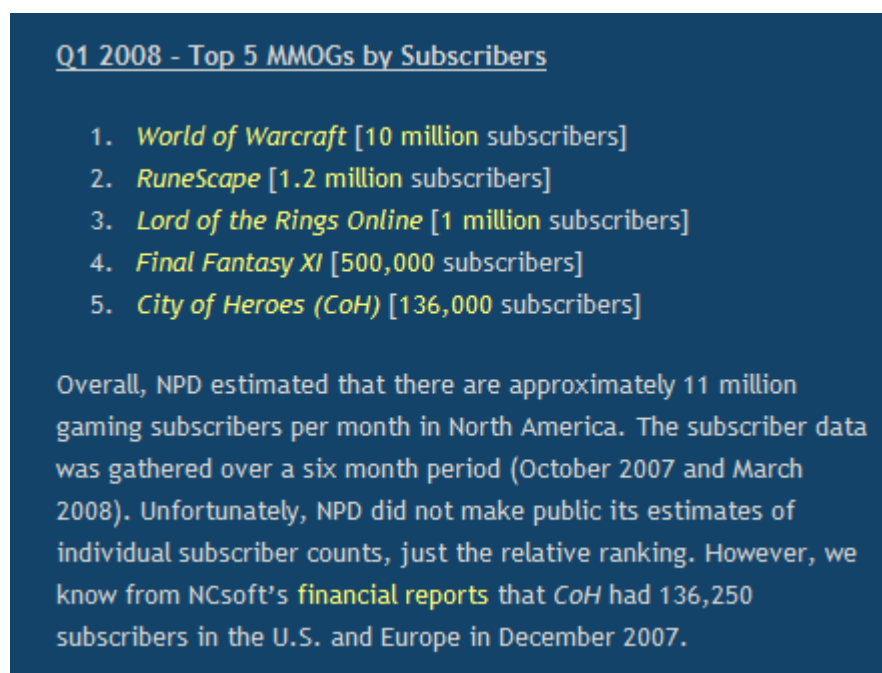

Q1 2008 - Top 5 MMOGs by Subscribers

1. *World of Warcraft* [10 million subscribers]
2. *RuneScape* [1.2 million subscribers]
3. *Lord of the Rings Online* [1 million subscribers]
4. *Final Fantasy XI* [500,000 subscribers]
5. *City of Heroes (CoH)* [136,000 subscribers]

Overall, NPD estimated that there are approximately 11 million gaming subscribers per month in North America. The subscriber data was gathered over a six month period (October 2007 and March 2008). Unfortunately, NPD did not make public its estimates of individual subscriber counts, just the relative ranking. However, we know from NCsoft's **financial reports** that *CoH* had 136,250 subscribers in the U.S. and Europe in December 2007.

Fig. 5 Statistics from NPD, augmented by Dan Miller from the U.S. Congress with figures on membership.

It should, however be noted that figures for both games and worlds can be problematic for several reasons. Firstly they are often released from either a national, European or American perspective. The number of players also rises and falls in a much more fluid way than with, for example, viewers of a television series. The organisation or marketing company releasing the figures may place emphasis on particular demographics or

include related products or services. This results in a range of slightly different figures about the same games being quoted from different sources, perhaps at different times, with different intentions. Finally, the numbers of people who are initially subscribing to virtual worlds (or games) and those who are active over time will change. There will be a high percentage of people who initially register but who fail to create an avatar or subsequently engage in the world or game.

Virtual worlds popular with children

The children in the *Adventure Rock* study chose *Club Penguin, Adventure Quest, RuneScape, Nicktropolis, Habbo Hotel*, and *Barbie Girls* as the virtual worlds they most enjoyed visiting (as well as the beta version of Adventure Rock that they were testing). *Adventure Quest* and *Habbo Hotel* are for adults and teens but they also appealed, largely due to the complexity and range of activities on offer. The comparison chart below illustrates what is provided for visitors. The amount of facilitation (moderation and hosting) required is also shown; this is in addition to the production of additional games and the opening of new areas for player/inhabitants to explore. *Moshi Monsters* is likely to be popular and *My Tiny Planets* is the other virtual world created in 3D, alongside the BBC's *Adventure Rock*.

Name	Content	Revenue Stream	Safety
Club Penguin	For 6-14 year olds. Accumulate and spend virtual coins through game play. Create an avatar. Play games. Adopt a pet (Puffles). Fan art and fan comics. Posters. Wallpapers & screensavers. Blog. Polls. Competitions. Campaigns.	Free, but subscription(£3.95 per month) Means you can buy additional content. Gift tokens and game cards. Links to the Disney online shop.	Parental controls. Predetermined chat and free chat. Moderators.
Adventure Quest	A Single Player Role Playing Game, suitable for all ages. No downloads are needed to play. Events, wars, characters, areas, quests, objects, and 700+ monsters. Classes are given to teach people how to master the world and gain status. You can become a Fighter, Wizard, Ninja, Vampire Slayer, Rogue, Knight, Mage, Paladin, Dragonslayer; and so on.	Free game, but advertising is offered via a 'Partner Programme'. All upgraded members (via subscription) can earn between 30-50% of referred player subscriptions through advertising the game on their own website, if they are over 18.	Staff Members, Forum Moderators and IRC Operators oversee the game. Users under 13 years of age can join in if both they, and their parents, agree to certain conditions: (1) Parents must create an account. (2) Parents must determine whether the content is suitable for their child. (3) Parents create their child's account, which gives access to the email and message boards. (4) Children cannot buy upgrades, only those over 18 can buy additional features or objects.
RuneScape	Quests at different levels. Characters. Pets. Currency. Member only areas Mini-games. Bank. Lend stuff to others. High definition graphics for those who subscribe. Website with forums and game updates.	Subscription costs between £3.20 and £5.00, per month.	The makers of the game Jagex, place the onus on parental responsibility for children over thirteen who play *RuneScape*, however there are forum moderators.
Nicktropolis	Create an avatar. Decorate a room. Mini games and larger games, including multiplayer. Create your own comic. Screensavers. Daily poll. Hang out with friends. Safe chat. Pets. Watch videos. Add friends to a 'safe list'. Weekly treasure hunts. Newsletter. Buy stuff. Top ten members rooms. Score points and swap them for avatar clothes or furniture. Visit favourite characters e.g. Spongebob Squarepants.	Links to the video and website associated with the Nickelodeon TV programmes (Nick.com).	Parents can set their child's account options for example either allowing or not allowing chat. The chat is via a sanitised dictionary, for example, words like 'street' or 'lane' are not allowed, and there are no numerals. The site has a 'dirty phrase checker', and the children can block or report problems or abuse to a moderator.
Habbo Hotel	Teenagers choose and furnish a hotel room, meet others in their rooms, and attend and host events. Buy and download music clips. Furniture can be swapped and also re-cycled in the 'Ecotron'. Teenagers can trade with each other, and also buy money bags, gold, digital TVs and so on. VIP Members (Habbo Club) can have 600 Friends on their Friends List (Console). Normal	Free to visit, but mainly a subscription-based service with additional micro-transactions for furni (furniture, pets, plants, wallpaper, flooring, camera, gifts and trophies). Credit cards can be used to buy Habbo Credits from many different countries. 1 Month = 30 Credits. 3 Months = 70 Credits (15 Credits Reduction). 6 Months = 120 Credits (45 Credits Reduction). Payment methods = phone, mobile, credit	*Habbo Hotel* is moderated every day, 24 hours. There are moderators, Customer Assistants and teenagers also help to run the Hotel. Head Guides are not staff and they are not paid. They are players who receive badges as a reward. Guides need to work up 10 levels to achieve the title Head Guide. *Habbo Hotel* also uses filters, which remove inappropriate Habbo names, guest room names and swearing from items which bear player-created messages. Offensive words are replaced with 'bobba' a form of 'gobbledegook'.

	Members have 100 on their list. Discussion forums Put posters up on your wall (Britney etc) Rate guest rooms in the hotel and view ratings for other Habbos' rooms.	card, in shops. Prices 450 Habbo Credits = £30.00 250 Habbo Credits = £20.00 100 Habbo Credits = £9.00 50 Habbo Credits = £4.50 35 Habbo Credits = £2.50	In addition, if any instances of 'scripted furni' are found (objects created by someone who is not a Habbo employee), it is considered a grave offence.
Barbie Girls	Shop for new furniture ('furni'). Chat. Play games. Create a room for yourself and invite up to five friends. Email friends on your friends list. Hang out in a tree house. Buy clothes and get virtual makeovers. Earn *B*Bucks by playing games, buy objects for your Barbie Girl. Buy a Barbie Girl device (MP3 Player), play music clips and get a one year subscription to Barbie Girls online. The device can copy music and other files from the child's CDs to the child's personal space on Barbie Girls.	Subscription: 1 month = $5.99, 3 months = $17.97, and 6 months = $35.94. Barbie Girl Device (MP3 Player) is sold in shops. This comes with a year's subscription to Barbiegirls.com, on registration of the device.	Parents can create an account and choose the level of interaction their child has with others. Barbie Chat is offered to all the children, it uses a drop down menu of words and phrases. Super *B*Chat is offered to registered members who have permission from their parents. A word filter blocks anything inappropriate and chat is only possible with other children who have also received their parent's permission. Children who have the Barbie Girl MP3Player can connected their Barbie Girl devices into each other's computers, type in messages using a dictionary of words compiled by Barbie Girl (there is also a filter) and invite each other via chat to each other's virtual rooms on Barbie Girl. If there are any other children in the girls rooms, they will automatically be removed.
Moshi Monsters	Friend list, find a friend. Create, adopt and look after a monster. Play educational games. 'Monstar of the Week' and 'Room of the Week'. Daily puzzles. Track your progress through the levels of the game, and how popular your monster is in the community.	Subscription from Christmas 2008. MoPods are mobile phone charms that light up and spin when you receive a call, text, email or voice message. You can attach them to your bag, belt loop or key chain - so you'll know when your phone is ringing, even when it's set to 'silent'. You could even attach one directly to your cell phone for a cool look. Moo Cards & Stickers Create your very own Moshi Monster greeting and postcards to send to friends, stickers to stick just about anywhere, mini cards and more!	If you give registration consent, your child will be able to invite friends into his or her network, and communicate with kids in their network through features like the "pin board." Messages are filtered and twice moderated. First by the Monster Owner and if reported, messages are moderated by a team of professional moderators.
My Tiny Planets	Create a spaceship. Customise avatar. Create a world. Play games. Chat. Meet other citizens. Learn about the economy (MTP Stars can be earned or bought) Buy and fly spaceships. Garden space-plants in a bio dome. Teleport to other places and planets. Customise a planet and its landscapes and buildings. Games rooms, chat rooms, message rooms, quiz rooms and factoid rooms.	Subscription and micro-payments (buy plants, objects and so on).	Moderated, but not facilitated. Children under 13 must get their parent's permission. Filtering software is also used, however the producers "Expect as part of the Terms and Conditions of using this site that both children and parents will play their part." Pre-scripted chat can be chosen by the child. Chat is recorded in a chat log, which the user or producers can see.

Audience behaviours in virtual worlds

Richard Bartle, who co-wrote the first text-based multi-user world at Essex University, gives a list of four types which he felt might be useful for game developers:

- Explorers: People who come to see what is there and to map it for others. They are happiest with challenges that involve the gradual revelation of the world. They want the world to be very big, and filled with hidden beauty that can only be unlocked through persistence and creativity.

- Socialisers: People who come to be with others. They are happiest with challenges that involve forming groups with others to accomplish shared objectives. They want the world to have extensive social infrastructure and shared activities: towns, clubs, arenas, weddings, hunting parties.

- Achievers: People who come to build. They are happiest with challenges that involve the gradual accumulation of things worthy of social respect. They want the world that allows all kinds of capital accumulation and reputation-building. They want the ability to increase the power of their avatar, to build new structures, to hoard wealth, and to change the world itself.

- Controllers: People who come to dominate other people. They are happiest with challenges that involve competing with others and defeating them. Also described as "griefers," they want worlds that allow users to intervene in the activities of other users, so that a record of domination and control can be established. To them, it is all sport" (Bartle, 2003: 130).

A more recent analysis of orientations within virtual worlds is provided in the research study on *Adventure Rock.* The researchers found the children had eight 'orientations to' the world/game; explorer-investigators, social climbers, collector-consumers, life-system builders, self-stampers, fighters, power-users, and nurturers:

Explorer-investigators

- *Interested in:* Following a quest, solving a mystery, going on a journey, being 'outdoors'
- *Likely to be:* The more confident children, no age or gender difference
- *Characteristics:* Examines the detail, curious and communicative, imaginative engagement with the mystery

Self-stampers

- *Interested in:* Presenting themselves in the world
- *Likely to be:* Both genders, possibly more older children
- *Characteristics:* Boys and girls wanted to 'make their mark' on their avatar, and perhaps have their own face on there; older girls wanted dress her up and have a make-up studio in *Adventure Rock*. Both boys and girls wanted to express themselves through the creation of a home/base

Social climbers

- *Interested in:* Ranking, social position within the environment
- *Likely to be:* Both younger and older children; only some gender bias (boys slightly more than girls)
- *Characteristics:* Competitive; concerned with ranking and exhibiting that ranking to others

Fighters

- *Interested in:* Death and destruction, violence, and superpowers
- *Likely to be:* Male, slight bias towards older boys
- *Characteristics:* In *Adventure Rock*, frustrated that they did not have a means to express themselves, with the exception of beating the crocodiles

Collector-consumers

- *Interested in:* Accumulating anything of perceived value within the system
- *Likely to be:* Older boys and girls
- *Characteristics:* Collects pages and coins. Wanted *Adventure Rock* to have shops, enable *gift-giving*, establish an economic system, and have somewhere to put things

Power users

- *Interested in:* Giving everyone the benefit of their knowledge and experience
- *Likely to be:* Expert in the games, the geography of the environment, the systems
- *Characteristics:* Spent more than three hours at a time playing/exploring *Adventure Rock*. An interest in how the game works

Life-system builders

- *Interested in:* Creating new lands, new elements to the environment, populating the environment
- *Likely to be:* Younger children (imagined worlds without any rules), and older children (imagined worlds with rules and systems – houses, schools, shops, transport, economy)
- *Characteristics:* In *Adventure Rock*, frustrated that they did not have a means to express themselves

Nurturers

- *Interested in:* Looking after their avatar, and pets
- *Likely to be:* Younger boys and girls, and older girls
- *Characteristics:* Wanted to meet and play with others. Wanted to teach their avatar to swim, and somewhere for the avatar to sleep. Wanted pets to look after

The children who followed these orientations (and it should be noted that some children are likely to have composite orientations) were also likely to have varying degrees of sociability. For example, life-system builders are highly likely to need other players to organise into social systems, social climbers need to be able to meet others in order to both demonstrate and measure their status. Explorer-investigators and collector-consumers might be very happy undertaking solitary activities within the world or immersive environment for much of the time; however, at some point even they are likely to seek out others to whom they can show their collections or tell their stories.

Being sociable

The children in the *Adventure Rock* study all felt that it was important to meet other children in virtual worlds or immersive gaming environments. A few of the younger children (7-9 year olds) preferred being on their own because there was less competition and they wouldn't need to share anything, but some of the other children began to construct ways of playing with other children. One girl wrote in her workbook how she played *Adventure Rock* on Christmas Day with her family: "My brother and sister and cousins love it". Another child wrote that her younger brother often watched her play: "My brother wanted his own username and password, because he thought that the game was amazing. And he said that he wants to be one of the next bunch of people who try the game out". Another girl echoed this: "My brother Thomas, who is four, really enjoyed watching this game with me and got really excited when I was chasing Raptor" (girl, 8, Belfast). The Glasgow children formed a club and went round to each others houses to play together, particularly if one child was experiencing a problem or was finding one of the levels hard.

Being creative

The children liked being creative in *Adventure Rock*, in particular in the music and drawing studios, but 'being creative' seemed to begin, for the children, with creating their avatar: "I got to design a character" (girl, 7 London); "It's good making the avatar" (boy, 8, Cardiff). The music, drawing and dance studios were very popular. Some of the children managed to create whole pieces of music in the music studio; one child, who said she played an instrument, said: "The music studio was the best. I've made three songs, a classical song, a beatbox/rap song and rock song, and they all sounded great."

Status: How am I doing?

Status within the world is expressed in different ways, through collecting coins and pages, progressing through the levels and through knowing about the game; being an 'elder' (Jo Kim, 2000) or a 'power-user'. Many of the children wrote down their scores in their workbooks, which shows how important it is to them that their progress is documented, stored for retrieval. One boy from Cardiff (aged 7) carefully documented the number of pages he had collected (24), the number of coins he'd collected (407), and his score (8,946).

The children wanted CBBC to acknowledge how well they were doing, and to be acknowledged by other children. There was some sense of wanting to perform for CBBC. This may have been due to the fact that the workshops were in BBC buildings, but this

was also a natural expression of being recognized for their achievements: "I am very disappointed and tired. I think you should reward the player when they find all the tokens because it was hard to get them all especially in the underground tunnel and at the end finding the last one" (girl, 10, Glasgow).

Mission and motivation

There is some evidence the children began to lose interest after they had explored all the areas open to them. This particularly applied to the 'Power Users': "Its fun creating stuff but you can lose interest. It's not interesting enough and not something I would do that much. There's not enough action" (boy, 11, Cardiff).

The researchers recommend the producers of Adventure Rock extend the natural peaks of motivation, for example, by introducing invitations, quests, acknowledgement or rewards around these moments.

FINDING – Peaks of motivation

The children had 'peaks' of excitement, which would result in increased motivation, for example:

1. When they first explored the world.

2. When they first play 'Bike Tangle'.

3. Going down their first tube.

4. Reaching Rainbow Canyon.

5. Swimming in the river.

6. Finding their first page.

7. Finding a strange symbol.

Orientation: Where am I?

The children needed several different kinds of orientation, for example, to know where they were located in the world, who was contacting them, and how they were doing. One boy said: "Cody shows me my *Adventure Rock* map and gives me all my scores and messages" (boy, 11, Glasgow). The children also wanted to know where they were in the narrative of *Adventure Rock*. During discussions in the second workshop they reported that they wanted to know why they were collecting the coins and pages. The children

felt they should be given some idea of what the quest was in order to increase their motivation for playing the game.

Humour

Humour was also found to also motivate players: "This game was quite hard and I kept losing lives. It was also quite fun because of the noises Raptor made and his voice made me laugh! My brother Thomas who is 4 really enjoyed watching this game with me and got really excited when I was chasing Raptor" (girl, 8, Belfast). The workshop participants liked the fact that Cody told jokes and had a slightly irreverent and cheeky attitude towards the robots and crocodiles: "Cody is really mean to the other robots and is so self-centered because when you pass the upgrade centre he says 'yeah, stuff for me' and to the robot he says 'I think you could do with an upgrade, pal'. He should be more kind" (boy, 11, Glasgow).

Having a 'home'

Ten percent of the children drew a home, cottage, tent or hotel for their avatar during the second workshop when they were asked to draw something they would like to see in *Adventure Rock* if they were the producers. The girls often drew houses or bedrooms and the boys sometimes drew dens or tents:

Fig. 6 "A Normal Cottage" (from the London 9-11 year old group)

Shops

During the first workshop, the children both discussed and drew what they wanted in an ideal virtual world. A significant number of the children wanted to have shops and ways to buy objects and gifts, for both their avatars and for other children they would meet in their worlds. The coins in *Adventure Rock* offer one means of accumulating wealth and the children enjoyed collecting them.

Identity

All the children liked creating their avatar, but they wanted to do more: "I think I should know what my name is or at least make my name up" (girl, 8, Cardiff). The items on offer for the avatars were not seen as fashionable enough: "The girl's outfits could be a bit better they're a bit yuck" (girl, 11, London). The boys also wanted to look good, with one boy commenting that the hair styles made the male avatars look "like freaks" (boy, 11, Glasgow).

Building an identity is obviously one of the most important activities for visitors and inhabitants of virtual worlds and immersive gaming environments. It takes time to acquire the paraphernalia required to become a knight in a medieval role play game, or to build a home in *Second Life*. Therefore regular visitors are likely to need spare time each week to devote to the maintenance of their avatar or player character. Once a player/inhabitant has begun to accumulate and acquire there is obviously strong motivation to continue.

Producing *Adventure Rock*

As part of the study the researchers attended the weekly *Adventure Rock* production meetings from August 2007 to February 2008. In addition the children were asked to give their comments on the production of the world through discussion, workbooks and drawings. The resulting findings, it is hoped, will also be useful to producers across the BBC and help to give some awareness of the activities and timescales involved in the production of virtual worlds. Many of the tasks which involved the producers of *Adventure Rock* will, obviously, be common to producers of adult worlds or immersive environments.

The researchers, and the children who participated in the study, strongly feel that children should be involved in the development process from early on, as it would then be possible to make adjustments to suit children's behaviours and reactions to the environment before launch. An instructive example is *Lego Universe* (http://universe.lego.com), which is due to be launched in 2009. For more than a year prior to launch, the potential fan community has been involved in the design process, being invited to submit ideas, preferences, and artwork via the website. The site includes a 'Creation Lab' where visitors can submit their Lego responses to particular challenges set by the *Lego Universe* team, and view, comment on and rate those submitted by others. Lego has also engaged its communities of adult and child fans in other ways to gain input. This may be partly a PR exercise, but it seems to work well and it is known that the *Lego Universe* team are taking these contributions seriously.

A selection of points to inform the development of future immersive environments was produced for BBC Children's which may be of interest to other producers in the BBC:

Pre-Production:

- Work with children to scope the project.

- Work with children to check the overall design.

- Consideration should be given to how children could work with the production team on an ongoing basis. The position the children are presently in should be changed from 'consumers' or 'audience' to 'co-producers' and 'experts'.

During production:

- More thought should be given to the elements of *Adventure Rock* which will sit outside the 'membrane' of the game and how children would move between the 'in game' and 'out of game' content.

- There should also be some cause and effect between the site and the world. Both the world and the website should reflect each other, on a daily basis.

Beta testing:

- Check the Beta test procedures with a group of child testers.

- If any areas are not going to be open, say they aren't open and why.

- Tell the child testers when new areas are going to be open for testing, so they can give their reactions.

- If a message board is provided for Beta testers, have both a technical AND editorial discussion, as the children want to talk about both the bugs they find and about the game structure itself.

- A sociable element should be provided from the beginning so children can chat to each other about the game and swap content, even if this is only a Beta test; the children will be much more motivated that way.

- The formation of a culture is an important as the number of visitors, and ideally, time should be given to the formation of a living culture before launch.

- It is very important to track behaviours over time; a one day user-test is not good enough for environments where there is some notion or element of ongoing 'habitation' or colonisation.

- Involve the children in the testing of registration and download and ask them what is going to help younger and less able children – they come up with great ideas.

- Prioritise the elements of the world where the children can see they are having a direct affect on the world e.g. user-generated content, galleries, and any associated social elements.

Post-Launch:

- Inform the Beta test children what will happen to their log-ins once the final version of the immersive environment has launched.

- The researchers are aware there is a forward plan for opening additional areas and providing more games. This plan could be shared with the children.

- Plan for the closing of the world. Disney faced problems when closing *The Magic Kingdom* (May, 2008), and it caused both children and parents distress.

Production: General points going forward:

- Consider whether some children could act as helpers, showing new children around as they register and answering repetitive 'Q and As' in the message boards.

- Involve the children in the iterative development of the world, for example, the evolution of new games, or the choosing of content to go into the galleries.

- Acknowledge children's content either automatically or actually, when they send it in.

- Encourage ideas for the extension of the world and keep children informed of the viability of incorporating new ideas. The children in the research workshops understood some things couldn't be changed, but they wanted to be kept informed.

Thirteen principles for a successful virtual world for children

During the workshops, half of the time was spent asking the children to express, through discussion and artwork, what they wanted to find in a virtual world for children. This, along with the other data previously presented, has been compiled into thirteen 'principles' for a successful virtual world for children:

> **FINDING – Thirteen principles for a successful virtual world for children**
>
> 1. Sociable – meeting and chatting
>
> 2. Creative – making avatar, making things
>
> 3. Control – owning and changing the space
>
> 4. A big 'outdoors' world to explore
>
> 5. Visible status – how am I doing?
>
> 6. Clear location – where am I? + easy transport
>
> 7. Mission and motivation – what's the purpose?
>
> 8. Some humour
>
> 9. Help when you need it
>
> 10. Chance to see professional video, their own work, and other children's
>
> 11. Somewhere to live – a home or town
>
> 12. Shops – buying stuff
>
> 13. A space away from adult rules (as seen in: everything chocolate!)

These principles are largely self-explanatory. The point of principle #3, on the theme of 'control', is that children wanted to be able to take ownership of the space, and be able to customize and personalise it (which *Adventure Rock* did not really allow them to do). The point of principle #13, 'A space away from adult rules', is that children wanted the virtual space to be free from adult conventions and interventions. This could be seen most clearly in the fact that many of the children imagined a fantasy world where everything was made of chocolate: we believe that here the freedom to eat as much chocolate as a child might want represents the desire to escape from the limitations routinely imposed by well-intentioned but fun-dampening adults.

Community management in Second Life

How the virtual world for adults, *Second Life*, manages community transgressions may be of interest to producers. Despite the generally 'free' nature of the world, Linden Labs provides some facilitation and rule-setting. The Community Standards sets out six 'behaviours' that, if transgressed may lead to suspension or expulsion from the world: intolerance, harassment, assault, disclosure, indecency and disturbing the peace. Many locations within the world are rated mature (M) or non-mature (PG); areas which are

not rated at all are considered PG. First violations result in a warning; subsequent violations are followed by suspension and banishment. 'Liaisons' (in-world representatives) may consider individual cases, and may issue a temporary removal from *Second Life*; residents with the surname Linden are likely to be Liaisons.

Misuse of accounts, particularly through the use of multiple accounts, is also frowned on. Anything which is thought to break the Community Standards can be reported via the 'Abuse Reporter' located within the 'Help' menu and every report is investigated, with the identity of the person reporting the violation kept confidential. Creators retain copyright and other intellectual property rights, however that is on the provision that the objects or services carry some warranties and that some license rights are provided, and certain 'forebearances and indemnifications', to other users of *Second Life* and to Linden Labs.

A future issue may be whether producers of virtual worlds should employ control, offer a governance system to inhabitants, or both. In September, 2005, two law students built a virtual courtroom in *Second Life* judging cases by using the Linden Labs Community Standards and real life statutes and procedures extant in the USA. Linden Labs asked the students to rename the court *The Metaverse Superior Court*, but allowed it to stay. In 2006 Linden Labs invented *The Cornfield*, as a means to punish minor crimes. When the resident logs on they find themselves in an endless cornfield within which they can walk for hours without finding other people, but sometimes broken objects. This is quite a useful strategy as "The worst thing you can do, as Bedizens know, is feed the troll. Ignoring him is usually the best answer" (Gillmor, 2006: 184).

The longevity of virtual worlds

Once large social media areas have been launched, it is not easy to close them. In 2000, BBC Sport decided to close down its football message boards; it took three months to achieve a position with the audience where the board could be closed. There were virtual sit-down protests with regulars visiting other boards to state their case, and letters were sent to the Director General of the BBC. This kind of closure seems to be even more difficult with virtual worlds, which have inherent longevity, as Castronova observes:

> "With few exceptions, worlds do not close once they are opened. This is absolutely astonishing in the context of games, where an industry rule of thumb holds that approximately 95 percent of titles will fail and disappear from the shelves after six weeks. By contrast, the seven year old world of *Ultima Online* still has more than 150,000 actively playing subscribers, at more than $10 a head. Indeed, all of the oldest games have amazingly robust population counts, synthetic worlds, it seems, almost never die" (Castronova, 2006: 56).

Disney announced the closure of their free virtual world *The Virtual Magic Kingdom* in April 2008, finally closing the world on 21 May 2008 amidst furious audience reactions and activity which included petitions, blog posts and a small demonstration outside Disney Headquarters. The moral of these two stories is (a) keep the audience entertained and (b) if you need to close down a virtual world (or an active online community with longevity), plan for the closure well in advance or risk audience distress and potential large-scale negative publicity and disruption.

Towards convergence

One way to maintain the interest of audiences inhabiting immersive environments is to place linear media 'in-game' or 'in-world' and/or the other way around. The rise of 'blended advertising' shows this is an increasing practice. For the BBC this is something which might have interesting uses, given the strategic emphasis on exploring '360 degree' content.

An indication of the kind of convergence which may become more common can be seen in the recent partnership formed between The Sci-Fi Channel (USA) and Trion World Network, a gaming company based in California. Their aim is to create a franchisable brand that is both a television series and a massive multiplayer game on the Internet. Fans who play the game will also assist by shaping the narrative through role play. The show/game aims to launch in 2010 and it will feature a world 80 to 100 years into the future. Game designers and television script writers will work together, something Geoff Boucher of the *Los Angeles Times* (June 2, 2008) believes to be important:

> "The games find their strongest settings in vast and dangerous worlds where any character can have his or her own quest to follow, while an episodic television drama is far more adept at zeroing in on a handful of individual protagonists. It's the difference between aerial footage of the Normandy invasion and the intimacy of a foxhole monologue."

The game will be entirely online and areas of the MMORG will open to reflect the ongoing story portrayed in the television programme. Video from the game (such as battles or other mass gatherings) will be used in the television series and the 'look and feel' of both will be the same.

Of course, other major narrative brands have already taken similar paths: the *Star Wars* universe can be consumed as a MMORG (*Star Wars Galaxies*, launched in 2003), as well as the movies, novels, TV animations, other video games, toys, comics, and other media, which are interconnected. The movie and TV narratives are still, however, seen as dominant, and would not be influenced, say, by player behaviour in the MMORG, as suggested in the Sci-Fi Channel project.

Inter-operability

There has been an aspiration by both developers and virtual world inhabitants that one day an avatar which someone has patiently created in one virtual world could go on holiday or on a business trip to another. In May 2008, the first case of an avatar 'transporting' from *Second Life* to the OpenSim server was reported on a blog kept by 'Zhaewry', apparently a member of the Linden Labs staff. (OpenSimulator, or OpenSim, is an open source server for hosting virtual worlds). Zhaewry writes:

> "All three Avatars had been logged on via the Agent Domain in the Linden Lab Aditi test grid. The Agent Domain took a "place_avatar" request from the client, and issued a "rez_avatar" request to the OpenSim, which handed the Agent Domain the necessary details so it could relay it to the client, and permit a login. We're all Ruth, because we're not yet syncing the agents with openSim inventory yet. That's just a small matter of programming... (Well, that's what we programmers always say.) We have no inventory, and we're stuck on the single region. But... it's a very nice first step."

Fig. 7 "At about 11:00 AM, Linden, Ruth arrived on an OpenSim server, quite quietly."

The significance and the business applications of this are obvious: many virtual worlds will cease to be walled-gardens, bringing the possibility to move a persistent identity between worlds.

Artificial intelligence

Artificial intelligence-driven characters and objects can be either player or non-player characters; depending on the amount they affect the outcome of the game. Non-player characters (known as NPCs or 'bots') are part of the culture of virtual worlds and

immersive gaming; they are characters or objects controlled by the computer software which are programmed to be animated and to chat. The bot's speech, being artificial and computer-generated, may lack the cultural nuances a real human being may bring to conversation. However, as Castonova says, "Improvements in game AI allow the computer-driven entities we encounter in synthetic worlds to get better at meeting our emotional needs" (2006:93).

A recent innovation has been the development of a browser which residents can use in *Second Life* to access the internet 'in-world'. This, in effect, will create an intellectual doorway through the 'membrane' around the world.

Fig. 8 The Daden Navigator (launched July, 2008)

Recommendations for the BBC

- The BBC has something of a market advantage at present because *Adventure Rock* is one of only two 3D virtual worlds for children in the UK. (Note, however, that other virtual worlds are distinctive in other ways, such as through the provision of tools for social communication and self-expression). Some of this positioning could be maintained if the organisation were to move quickly, through the provision of new immersive services for both children and adults.

- There is a business risk that the BBC will lose audiences to commercial operators if the Corporation fails to produce web-based immersive public service content of similar social complexity to global commercial offerings. It is clear that the children and parents in this study expect the BBC offer innovative and collaborative services online.

- A recent trend in virtual worlds and immersive gaming environments is to provide linear media as adverts or short-form video for inhabitants or gamers. The BBC might offer suitable content from the BBC archives to audiences via 'third party' virtual worlds.

- BBC Children's is experimenting with short-form video in *Adventure Rock*. The researchers found the children were excited by the idea of being able to view short video clips in the world. It would be useful for producers in BBC Children's to present audience reactions to video in *Adventure Rock* to the BBC as a whole, once they have completed a sufficient number of trials.

- The parents in this research study were mostly enthusiastic about virtual worlds and immersive environments for their children. There was, however, a need to raise awareness about immersive media. The researchers recommend increasing audience awareness of immersive media in order to encourage adoption of any subsequent BBC immersive media content. The present perception and understanding of virtual worlds is likely to be of *Second Life* and of role playing games only.

- Sufficient financial resources should be allocated to BBC departments to support the production and ongoing management of immersive online environments. These costs might be reduced by negotiating a position of shared responsibility with inhabitants or gamers; the inhabitants could take over some facilitation, for example, answering basic questions, giving technical help, or welcoming new visitors.

- BBC producers should consider ways in which audiences can be more closely involved from the earliest point in concept development – not mere beta testing, when the production is almost complete.

- Finally, the researchers recommend that a second research project is undertaken to explore how the BBC might move from a position of the moderation of all user-

generated content to one where there is shared governance and the co-facilitation of participatory media. This research study found that it is common practice, in virtual worlds for children, for producers to enlist the assistance of members.

Conclusion

Virtual worlds, immersive gaming environments and immersive technologies are likely to be of interest to BBC producers. Worlds and immersive gaming environments will begin to affect other content forms either culturally or technically, offering both challenges and opportunities for content providers. Children are beginning to use virtual worlds as a natural extension of imaginative play behaviours; they see virtual worlds as an everyday addition to other media.

Virtual worlds offer the BBC an opportunity to engage with audiences in new ways, including the possibility to co-organise the space (to some degree) with users. New forms of governance are emerging in some virtual worlds which will be interesting for the BBC to trial. Virtual worlds will, however, need to be properly managed and facilitated; there will continue to be a need for some moderation of content and escalation procedures. Virtual worlds which are not facilitated or well managed may fail as the inhabitants may not feel sufficiently motivated. Worlds which have a purpose, culture and defined roles, goals, objectives and rewards, are more likely to flourish.

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Further sources of information

- David Gauntlett: Creative research methods: http://www.artlab.org.uk
  Information on creative methods, including YouTube videos outlining the principles of the process.

- Aleks Krotoski: http://socialism.wordpress.com
  Aleks blogs about virtual worlds and her doctoral research on *Second Life*.

- KZero: http://www.kzero.co.uk/blog
  Source of data on users of virtual worlds.

- Ofcom, 2008, *Media Literacy Audit*:
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- The Social Research Foundation: http://www.socialresearchfoundation.org
  Runs ongoing focus groups in *Second Life*.

The research team

The researchers are based at the University of Westminster's media department, one of only three to have achieved the highest recognition (a '5', meaning international excellence) in the Research Assessment Exercise consistently for twenty years.

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Lizzie Jackson worked at the BBC for eighteen years in radio and new media production, with a 'commercial break' in the middle as Managing Director of Soundbite Productions Limited. Lizzie returned to the Corporation in 1997 and subsequently launched the BBC's message boards, Live Chats and Chat rooms as Editor, Online Communities and oversee the BBC's internet safety initiatives as Editor, Chatguide and Internet Safety. She is a founder member of eMint, The Association of Online Community Professionals and was named as 'One of the 100 Innovators of the UK Internet Decade' in 2004.

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Arts and Humanities Research Council: Each year the AHRC provides approximately £100 million from the Government to support research and postgraduate study in the arts and humanities. In any one year, the AHRC makes approximately 700 research awards and around 1,000 postgraduate awards. Awards are made after a rigorous peer review process, to ensure that only applications of the highest quality are funded. Arts and humanities researchers constitute nearly a quarter of all research-active staff in the higher education sector. The quality and range of research supported by this investment of public funds not only provides social and cultural benefits but also contributes to the economic success of the UK. See www.ahrc.ac.uk.

BBC Future Media & Technology focuses on what comes next for the BBC in terms of technology and services. The department concentrates on innovative platforms and content and is involved in the development of search, navigation, metadata, on-demand, mobile and web based applications including the emerging BBC i-Player on demand service and Web 2.0 initiatives, as well as the BBC Open Archive. FM&T aims to keep the Corporation on the cutting edge of the industry at a time where the boundaries between producers and audiences are fast disappearing and the entire landscape of the large scale broadcaster is changing dramatically.

The AHRC/BBC Knowledge Exchange Programme is led from within the BBC by the Innovation Culture team. Innovation Culture provides a central support resource for a wide range of BBC divisions, making it more effective to undertake collaborative work. It forges partnerships outside the BBC as well as internally enabling the transfer of ideas, knowledge and prototypes into the business. By encouraging best practice across the whole of the BBC's Future Media and Technology (FM&T) division, of which BBC Research and Innovation is part, the team brings a strategic overview to a range of innovation techniques. It also drives forward a variety of early stage research projects in key strategic areas, bringing a user centered design approach to emerging technology practice.

BBC Knowledge Exchange blog: http://www.bbc.co.uk/blogs/knowledgeexchange
This blog is the place to go for any new announcements, outputs, musings from the KEP team. There will also be posts from project partners involved with the funded projects.

beebac: http://beebac.welcomebackstage.com
beebac is the online knowledge network for the BBC and academic community . It is a place to find likeminded individuals and a resource for ideas, projects and people. It enables you to find people and projects you want to be involved with, explore areas of mutual interest and exchange ideas and resources.

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